

The following Listing of Claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS:

1. (Previously Presented) A motor comprising
an armature and a field element which are rotatable relative to each other on a rotation axis extending in a first direction, wherein
said armature includes
an armature winding which is placed at a distance in a second direction perpendicular to said first direction, from said rotation axis, and
said field element includes:
a plurality of first yoke plates each including one end which faces said armature winding in said first direction and the other end which does not face said armature winding in said first direction, each of said plurality of first yoke plates extending in said second direction; and
a magnetic-field creating magnet which has a north pole joined to said other end of one of adjacent first yoke plates of said plurality of first yoke plates, a south pole joined to said other end of the other of said adjacent first yoke plates, and a U-shaped magnetic path which opens to said plurality of first yoke plates, said magnetic-field creating magnet at least locally facing said armature winding in said second direction.
2. (Previously Presented) The motor according to claim 1, wherein
said one ends of said adjacent first yoke plates are connected to each other.
3. (Previously Presented) The motor according to claim 1, wherein
said other ends of said adjacent first yoke plates are connected to each other such that a junction between said other ends of said adjacent first yoke plates does not overlie a boundary between said north pole and said south pole.
4. (Previously Presented) The motor according to claim 1, wherein
each of said plurality of first yoke plates includes a linear outline parallel to said second direction.

5. (Previously Presented) The motor according to claim 1, wherein an interval between said adjacent first yoke plates increases as a distance from said rotation axis increases in said second direction.

6. (Previously Presented) The motor according to claim 5, wherein said interval between said adjacent first yoke plates non-linearly increases in proportion to said distance from said rotation axis.

7. (Previously Presented) The motor according to claim 1, wherein said magnetic-field creating magnet is disc-shaped.

8. (Previously Presented) The motor according to claim 1, wherein said magnetic-field creating magnet includes:
at least one permanent magnet in which a north pole and a south pole are laid side by side in said first direction; and
a second yoke plate which joins said north pole and said south pole of said permanent magnet on a side opposite to a side on which said plurality of first yoke plates are placed.

9. (Previously Presented) The motor according to claim 1, wherein said magnetic-field creating magnet includes:
at least two hexahedron-shaped permanent magnets in each of which a north pole and a south pole are laid side by side in said first direction; and
a second yoke plate which joins said south pole and said north pole of each of said permanent magnets on a side opposite to a side on which said plurality of first yoke plates are placed.

10. (Previously Presented) The motor according to claim 8, wherein said permanent magnet is a bonded-magnet.

11. (Previously Presented) The motor according to claim 10, wherein said permanent magnet is formed integrally with either said plurality of first yoke plates or said second yoke plate by injection molding.

12. (Previously Presented) The motor according to claim 8, wherein a width of said second yoke plate extending in said second direction is larger than a width of said permanent magnet extending in said second direction.

13. (Previously Presented) The motor according to claim 8, wherein a width of said second yoke plate extending in said first direction is larger than a width of said permanent magnet extending in said first direction.

14. (Previously Presented) The motor according to claim 8, wherein a portion extending along a portion of said permanent magnet where different polarities are adjacent has a larger width extending in said first direction than said other portions in said second yoke plate.

15. (Previously Presented) The motor according to claim 1, wherein said armature further includes a substrate on which said armature winding is placed.

16. (Previously Presented) The motor according to claim 15, wherein said armature winding is placed on each of surfaces of said substrate which are opposite to each other in said first direction.

17. (Previously Presented) The motor according to claim 16, wherein said armature winding placed on one of said surfaces of said substrate and said armature winding placed on the other of said surfaces of said substrate are misaligned with each other in a rotation direction of said field element which is defined based on said armature.

18. (Previously Presented) The motor according to claim 15, wherein said armature winding is a flat coil in which a conductor is formed by a photolithographic process.

19. (Previously Presented) The motor according to claim 1, wherein said armature and said field element are paired to form one motor set, and a plurality of motor sets are connected to be arranged in said first direction, said plurality of motor sets being centered on said rotation axis in common.

20. (Previously Presented) The motor according to claim 19, wherein said armature windings respectively included in said plurality of motor sets are misaligned with one another in a rotation direction of said field element which is defined based on said armature.

21. (Previously Presented) The motor according to claim 1, wherein said armature winding is placed closer to said rotation axis than said magnetic-field creating magnet, and said field element and another field element similar to said field element are connected to each other to be arranged in said first direction with said armature being interposed therebetween, said field elements being centered on said rotation axis in common.

22. (Previously Presented) The motor according to claim 1, wherein each of said first yoke plates includes a first flat portion which forms an air gap in a space between said first flat portion and said armature winding, and a second flat portion connected to said first flat portion, and said first flat portion is placed closer to said armature winding than said second flat portion in said first direction.

23. (Previously Presented) The motor according to claim 1, wherein said armature further includes at least one position detection sensor for detecting a position of a magnetic pole of said magnetic-field creating magnet, and

said position detection sensor is placed in a substantially central region of said armature winding.

24. (Previously Presented) The motor according to claim 1, wherein
said armature further includes at least one position detection sensor for detecting a position of a magnetic pole of said magnetic-field creating magnet, and
said position detection sensor is displaced with respect to a line extending from said rotation axis to a substantially central region of said armature winding in a direction opposite to a rotation direction of said field element which is defined based on said armature.

25. (Previously Presented) The motor according to claim 23, further comprising
drive means for supplying either rectangular-wave or sinusoidal drive current to said armature winding based on an output of said position detection sensor.

26. (Previously Presented) The motor according to claim 1, further comprising:
means for detecting an induced voltage of said armature winding;
means for estimating a position of a magnetic pole of said magnetic-field creating magnet from said induced voltage; and
drive means for supplying a drive current based on said estimated position of said magnetic pole of said magnetic-field creating magnet to said armature winding.

27. (Previously Presented) The motor according to claim 26, wherein
said drive means sets a phase of said drive current forward to a phase of said induced voltage.

28. (Withdrawn) A motor comprising:
an armature including an armature winding and a first yoke plate which are stacked in one direction; and
a field element which includes a magnetic-field creating magnet having magnetic poles which are laid side by side in said one direction and are different from each other in

polarity, said field element being rotatable relative to said armature on a rotation axis extending in said one direction, wherein

said first yoke plate includes a non-conductive part extending in a rotation direction of said field element.

29. (Withdrawn) The motor according to claim 28, wherein
said non-conductive part includes a plurality of slits which are arranged along a circle centered on said rotation axis.

30. (Withdrawn) The motor according to claim 29, wherein
said plurality of slits are arranged such that at least one of said plurality of slits is present in a position at every angle along said rotation direction in a range between said rotation axis and a periphery of said first yoke plate.

31. (Withdrawn) The motor according to claim 28, wherein
said first yoke plate includes a plurality of magnetic plates having a boundary extending along at least one circle centered on said rotation axis, and
said non-conductive part includes said boundary between said plurality of magnetic plates.

32. (Withdrawn) The motor according to claim 31, wherein
an insulating coating is provided on said boundary between said plurality of magnetic plates.

33. (Withdrawn) The motor according to claim 28, wherein
said armature winding and said magnetic-field creating magnet overlap each other in a direction extending from said rotation axis toward a periphery of said first yoke plate.

34. (Withdrawn) The motor according to claim 33, wherein
said magnetic-field creating magnet includes a plurality of subsidiary magnets each having magnetic poles which are laid side by side in said one direction and are different from each other in polarity,

said plurality of subsidiary magnets are arranged such that different polarities are alternately provided around said rotation axis and a boundary between said different polarities extends in said direction extending toward said periphery,

said field element includes:

a second yoke plate which includes a first portion facing said armature winding in said one direction and a second portion connected to one side of said magnetic-field creating magnet which is opposite to a side on which said armature is placed, said second yoke plate being placed orthogonally to said rotation axis; and

a third yoke plate which joins said different polarities provided on said side of said magnetic-field creating magnet on which said armature is placed, and

said second yoke plate includes a non-magnetic part extending in said direction extending toward said periphery on a boundary between said plurality of subsidiary magnets.

35. (Previously Presented) A blower comprising:
said motor recited in claim 1; and
a fan which is rotated by said motor.
36. (Previously Presented) A compressor comprising
said motor recited in claim 1; and
a compressing mechanism which is rotated by said motor.
37. (Previously Presented) An air conditioner comprising:
said motor recited in claim 1; and
a rotation driving mechanism which is rotated by said motor.